G. R. S. 59]

6-10

GENERAL AND REVENUE SECRETARIAT.

1913-14.

(Genl. misc.)

File No. 270-10

Serial Nos. 1 to 27.

Papers Filed.

Month July 1913

SUBJECT.

Invention of Charles Washington Merrie of Berkeley for an "Improved Process for precipitating and recovering Valuable materials from Solutions and particularly metals from Hydrometallurgical Solutions".

PREVIOUS REFERENCES.

LATER REFERENCES.

Gen. 5-26-17 ii-1-2-3

Sec. (77-18) (15-3)

Ind. 207-21 (1-5)

Manager's Mfrs

H. Srinivasa murti. 3.11.13.

G.R.S. 11] 1900 - 11

GENERAL AND REVENUE SECRETARIAT.

(Genl. Misc)

Regr. no 6 of 1910-11

NOTES.

File No. 270-10

FILE HEADING.

Invention of Charles Washington Monnell of Berkeley for an improved process for precipitating and recovering values materials from solutions, & particularly metals from hydrometallurgical solutions

From

Messrs Remfry & Son.

No. — Dated 24-4-11 Received 27-4-11

Diary No. 459. | Enclos. 2 | Spare Copies | Serial No. 1

BRIEF ABSTRACT OF LETTER.

Forwards an application from Mr. Monnell for leave to file a specification of his invention together with a Power of attorney & a sum of Rs 11: states that no corresponding Indian application has been made -

NOTES AND ORDERS.

Subt with 3 Dfs.

Vs (125) VS. 41

1-5-1911 2 Applcd

1-5-11

NOTES—First sheet

GPB—30,000—3-4-07.

G.R.S. 12]
General and Revenue Secretariat.

2

Jun File No. 270 of 1900-

Serial No.	
2	To the D.C. Treasury Deptt, Bangalore No G 6478 Dy 8. 5. 11.
	Forwards for deposit Rs 10/- being the applⁿ fee recd with the above & requests acknl.
3	To the Supdt of Stamps. No G 6479 Dy 8. 5. 11.
	Forwards the Power-of-Attorney & Rel/ recd with sl 1 and requests that the former be impressed with a general stamp of the value of Re 1 and returned to this Office.
4	To the State Geologist. No G 6480 Dy 8-5-11.
	Forwards for report the applⁿ recd with sl 1.
5	From the Treasury Officer, Bangalore — No 380/27 Dy 12. 5. 1911 — acknowledges the receipt of the sum of Rs 10 ~~received~~ forwarded with sl 2,
6	From the Supdt of Stamps — No 185 Dy 13.5.11 Returns duly stamped the Power of Attorney sent with sl 3.
	3 Draft cckt lost 6 ents
	15(125) / 16.5.11 — 4 Issued / 16/5/11
7	To the Supdt of Stamps. No G 6794 Dy 20-5-11
	Acknowledges the receipt of the 2 Powers of Attorney forwarded with the above.
8	From the State Geologist No 2403 Dy 6.6.1911. with refce to sl 4 — forwards copy of the Chief Inspector's report calling for a more concise description of the claims put forward in this & in the other case.

Sus

4 & 4b

NOTE—Contn. sheet.

GPB—55,000—27.4.09

Serial No.	
	6 Draft letter subd. (that there is already a list of the claims that the claims are already enumerated)
5297	VS (125) hrs 10-6-11 1 Issue hrs 10/6/11
9	To Messrs Remfry & Son, Calcutta. No. G. 7337 d/ 10.6.11 With refce to Sl 1, requests them to furnish a more concise description in an abbreviated form (giving the essentials particulars only) of the claims put forth in the case as well as that refd to in G.R. 271 of 10.
10	From the above. d/ 5. 6. 12. In reply to the above, forward amended claims in respect of the inventions — 7 Draft subd for approval & other orders. 9A 99 11.6.12 VS. 41 8 Issue hrs 12.6.12
11.	To the State Geologist, No. G. 6573 d/ 14. 6. 12 — With refce to Sl 8, forwards amended claims in respect of the 2 inventions recd with Sl 10 above & Sl 6 of G.R. 271-10 respectively & requests to be informed if the said claims may be accepted, also forward for refce & return the applications in respect of the said inventions.
12	From the above. No. 233 d/ 23. 7. 12. In reply to the above, he reports that the amended claims may be accepted, provided certain additions are made to Claims 1, 4 and 6.

NOTE—Contn. sheet.

Serial No.

1522 B
3502
4.59

9 Draft putup in the linked file (fm 271 of 1910-11).

Subd 29.7.12 VS. 47

10. Issue

Intd BR 30.7.12

To Messrs Remfry & Son, Calcutta, no G.659 d/3.8.12 — With refce to the above (Cl 12), states that the amended claims will be accepted provided certain amendments mentioned herein are made.

Sd 13

13 From the above letter d 16.1.13

Submits amended claims are reg? in the above.

11 Draft forwarding the claims to the State Geologist is subd.

G.459 3.2.13

12 Issue

BR 4.2.13.

14 To the State Geologist no G.458 d/ 10th Feb 1913 With reference to Sl 12, forwards the amended claims received with the above & requests to be informed whether leave to file the Specification Can now be granted.

fms

15 From the above no 987 d 20.2.13.

In reply to the above, states that the claims as now amended may be accepted and the leave applied for granted.

13 The usual drafts are subd

G.459 25.2.13 WL

NOTE— Contn. sheet.

GPB—50,000—12-8-10

[G. R. S. 12]

General and Revenue Secretariat. | G.R. File No. 270 of 1910-11

Serial No.

4. Issue
hm
25.2.13

4559

16. To Mr. Charles Washington Merrill of Berkeley, Alameda County, California U.S.A. G. 5190 dt 28-2-13. Authorizes him to file a specification of the invention referred to.

gus

17. To Messrs Remfry & Son, Calcutta G. 5191 dt 28-2-13. Forwards the above for communication to the party concerned.

18 From the same. dt 10.3.13.

Returns Sl. 16, and request that the date of receipt of the applⁿ (therein entered viz 21.1.13) be rectified as the applⁿ was submitted by them on 24.4.11. Sl. 15. The application was no doubt, forwarded by Messrs Remfry and Son on the 24th April 1911 and received in this office on the 27th idem. But the claims put forth in the application having been too long in their original form, a more concise description of the same in an abbreviated form was called for. (Vide Sl. 9). Neither were the amended claims received accepted; they also required to be still further amended and the same having been intimated in

NOTE—Contn. sheet.

GPB—65,000—17-6-12.

[G. R. S. 12]

General and Revenue Secretariat. | Gm File No. 270 of 1910

6970
5160

Serial No.

Hx in the file

in para 2 of this office letter No. G 659 & 3rd Gm 271-10-9 August 1912, Messrs Rempfry & Son sent in re-amended claims on the 16th Jany 1913, which were accepted. As the application for leave to file a specification of an invention cannot be said to be complete without the claims, and as these last in an acceptable form were received only on the 21st January 1913, this date has been inserted in the order. It is not apparent how this would cause inconvenience to the party concerned.

Subd
5/A99
26.3.13
NR, 16. I think it is only the final amended application which was accepted, that has to be mentioned in the order, as stated above. The facts may be explained to and reply sent

But please see further note below, para 18.

BM
5/4/13.

BM
27.3.13.

19 From Messrs Rempfry and Son. dt. 22-3-13.

Forward Rs 30/- and 4 copies of the specification and request the filing of the specification and return of the rectified order forwarded by them with Sl. 18.

17. Drafts subd with refce to para 16 above.

Subd
5/A99
28.3.13
NR

The certificates at foot of the S.O. require signature.

NOTE—Contn. sheet.

GPB—65,000—17-6-12.

General and Revenue Secretariat.

G. M. File No. 270 of 1913-11

Serial No.

5166

18. On further consideration, it seems to me the matter is not quite free from doubt as to what date has to be considered as the date of the application. The opinion of Br III may, I think, be taken.

III).

KB
8/4/13.

Jmis 147 of 12-13

19. Submitted

See: 12(2) of the Inventions and Designs Regn., 1894, says that applications for leave to file a specification shall be numbered consecutively in the order in which they are delivered or received, and be dated as of the day of their delivery or receipt and shall be entered in the register of inventions in the order of their respective numbers.

This shews that the date when the application was rec received 27/4/13 should be taken as the date of application even though the application had to be returned for a portion of it being amended.

NOTE—Contn. sheet.

GPB—65,000—17-6-12.

R. S. 12]

General and Revenue Secretariat.

G. M. File No. 270 of 1910-11

Serial No.

5766
Flag X

Moreover the amendment called for by this office was not in a material part of the application as the applicant was, on the advice of the State Geologist only asked to give a concise description of his claim as what was stated in the application dated 24/4/11 was very lengthy and could not easily be followed.

16/4/13 17/4 Br V

Sub
23/4/13

20 Draft submitted as directed.

21 Out of the 4 drafts subd, the draft now submitted and the Draft Notification require approval and the Certificate at foot of the order requires signature. (both draft & fair)

20.5.13

22 The point raised was what date should be entered in the second line of the order authorising the filing of the specification. The order is in this form "whereas an application dated the & received on the etc". In this case, an application dated 21-3-1911 was recd on the 27th april 1911. As certain amendments were necessary

The question is what date should be entered as the date of receipt.

NOTE—Contn. sheet.

R. S. 12]

General and Revenue Secretariat.

Gen File No. 270 of 1910-11

Serial No.

5166

they were called for + the amended application was recd back in this office on 21-1-13. This date ie 21.1.13 was entered in the order beg this office which was ~~and~~ sent to Messrs Remfry & Son. They contend that the date of receipt should be entered as 27-4-11 + not 21-1-13. This contention seems to be correct, as the wording of the order clearly shows that the date to be entered was the date when the application was first received in the Secty's

The Correction is accordingly made + the drafts are submd for approval

SPR 22/5

Secy

I agree

26/5

SPR 26/5

20 To the Compiler. G.7871 dy 6-6-13. Notifies the filing of the Specification referred to.

21 To messrs Remfry & Son G.7872 dy 6-6-13 Forwards copy of the above for Communication to the party concerned & returns.

NOTE—Contn. sheet.

GPB—65,000—17-6-12.

R. S. 12]

General and Revenue Secretariat.

G.M. File No. 270 of 1910-11

Serial No.	
	Sl 6 with the certificate at foot duly filled in & signed.
22	To the D. C. Dry. Dept Bangalore. C. 7873 dy 6-6-13. Forwards Rs 30/- received vide Sl 19 and requests acknowledgment
23.	To the Chief Engineer, Supdt Govt Museum the State Geologist C. 7874-6 dy 6-6-13. Forwards a copy of the specification received with Sl 19 for record in their offices and requests acknt.
24	From the D.C. Dry, Bangalore. No. 49/276 dy 9. 6. 12 Acknowledges the receipt of the amount forwarded with Sl 22.
25	From the Supdt, Govt Museum. No 307 dy 9-6-12
26	From the State Geologist. No. 2902 dy 9-6. 12. Acknowledge the receipt of the Specification forwarded with Sl 23. The receipt of the reply from the Chief Engineer may be awaited. Submd 18/6/13
	Yes SM 15/6
27	From the Chief Engr. No 5565 dy. 11.7.13. Acknowledges receipt of the above Specification. This Correspondence may be filed now. Sl. 26.7.13.

Sans 329

Manuscripted

NOTE—Contn. sheet.

File 26/7/13.

GPE—6,000—17-6-12.

Application.

D 4579.

(1)

Enclosures not received

To THE SECY: TO THE GOVT: OF MYSORE.
~~THE PATENT SECRETARY,~~
Genl. & Rev. Depts.
~~PATENT OFFICE,~~
Bangalore, Mysore.
~~CALCUTTA.~~

9.m. 20-10-11

FROM

REMFRY & SON,

SOLICITORS AND PATENT AGENTS,

CALCUTTA.

Case B.

Dated CALCUTTA, the 24th April 11.

Sir,

We beg to forward herewith an application ~~(with Duplicate thereof)~~ of CHARLES WASHINGTON MERRILL, of Berkeley, Alameda County, California, United States of America, Metallurgical Engineer,

for leave to file a Specification under Part I of the Mysore Inventions and Designs ~~Act, 1888~~ Regulation 1894, in respect of an Invention for "AN IMPROVED PROCESS FOR PRECIPITATING AND RECOVERING VALUABLE MATERIALS FROM SOLUTIONS AND PARTICULARLY METALS FROM HYDROMETALLURGICAL SOLUTIONS"

and solicit the favour of your submitting the same for the orders of His ~~Excellency the Governor General in Council~~ Highness the Dewan of Mysore.

The prescribed Fee of Rs. 10/- is ~~enclosed~~ sent by P.O.O., and the Power-of-Attorney under which we are acting. is sent herewith. and we solicit the favour of your having same stamped Rs1/-.

There is no corresponding Indian Application.

We have the honour to be,

Sir,

Your very obedient servants,

REMFRY & SON.

per

500—12-8-10.

(2

Office of ...

COUPON. The remitter may write here any communication to th...

Rs. 22/-

Application filing fees Cases A & B Remitted
C.W.MERRILL. Mysore. See Letter of
date. Including Stamping Powers.

REMFRY & SON.

per

I. B. & T.

284

Survey Report ij
Dd
13/5/11

4577
13/5/11

G.R.S. 29A]

190

From

Secy. to the Govt. of His Highness the Maharaja of Mysore, Genl. and Rev. Dept.

To

The Dy. Com^r

Dated

Despatched 8. 5-11

Received

Inv. Deptt. Bangalore

General No. C6478

Genl No. 270-10-2

Enclosure No. Rs 10/- only

Has the honor to forward herewith for credit as sum of Rs 10 received from Messrs Remfry & Sons Calcutta ~~on account of~~ being the application fee in respect of an invention of Charles Washington Merrell of ~~California~~ Berkeley for "An improved process for precipitating and recovering valuable materials from solutions and particularly metals from hydrometallurgical solutions". & to request the favour of an acknt.

Obd.

1.5.11

Dy Com^r Inv Deptt

MGCFB—20,CO—16-2-05

Money & Cover slip

D III 12/5/11

4579 7/5/11

G.R.S. 29A]

190 .

From

Secy. to the Govt. of His Highness the Maharaja of Mysore, Genl. and Rev. Dept.

To

The Supdt of Stamps.

Dated

Despatched 8. 5. 11

Received

General No. G 6479
Genl No. 270-16-3
Enclosure No. 1 & Rel/-only

In forwarding herewith a Power of Attorney constituting ~~in favour~~ of Messrs Remfry & Sun, Calcutta as Agents for Mr. Charles Washington Mennell of Berkeley in the matter of his invention for "An Improved Process for precipitating & recovering valuable materials from solutions & particularly metals from hydrometallurgical solutions" has the honor to request that the same may be impressed with a general stamp of the ——

MGCFB—20,000—16-2-05

5

value of Re 1. & returned to the office.

A sum of Re 1 is herewith forwarded.

BDO.

11/5/11

In Calcutta Reg

G.R.S. 29A]

3015

190 .

6

From

Secy. to the Govt. of His Highness the Maharaja of Mysore, Genl. and Rev. Dept.

To

The State Geologist

Dated

Despatched 8. 5. 11

Received

General No. G6480

Gen No. 270-10-4

Enclosure No. /

Sir,

I am directed to forward herewith for favour of enquiry & Report under Part I of the Inventions & Designs Regulation

Return Requested

No XI of 1894 an application by Charles Washington Moncrieff of Berkeley for leave to file a specification of his invention for "An Improved Process of & for precipitating and recovering valuable materials from solutions & particularly metals from hydrometallurgical solutions."

MGC FB—20,(CO—16-2-05/12 Steam to 1.5-11

VS 2 letters.

Ex. 20.10.5

(1)

W/12/5

Book No. 1012

D4508 380..

Rs 20-0-0. No 27

(7)

Treasury dated 12. May 04.

Received from Chief Secy. Secretary to Govt. General & Revenue departments.

Rupees Twenty Only

Annas ——— and Pies ——— being on account of

application fees Rs per Govt Notfs.

No 6487/Gen 271-10-2 & No 6478/Gen 270-10-2

dated 6th & 8th inst respectively.

Accountant Gl

In charge of Treasury.

Asst Bengal Secretariat.

No 185

Two Stamped Documents.

8 Office of the Superintendent of Stamps in Mysore Bangalore

Dated 13th May 1911. D4846

G.Rs-270-10-6

From N. Krishnaswami Row Esqr B.A. B.L.

Superintendent of Stamps in Mysore.

To C. S. Balasundram Iyer Esqr B.A.

Offg. Secretary to the Government of Mysore General and Revenue Departments, Bangalore.

Sir,

I have the honor to return herewith duly stamped, the two Powers of attorney, received with your Docket Nos G.6458 and G.6479 dated Jun 271-10-3 Jun 270-10-3 6 and 8th instant respectively (both received yesterday), and to request the favor of an acknowledgment.

I have the honor to be

Sir,

Your most obedient Servant.

N. Krishnaswami Row

Superintendent of Stamps in Mysore.

X. Kept in the file concerned. [illegible]

Case B

9

POWER OF ATTORNEY.

In the matter of the Inventions and Designs Regulation, 1894, of the Government of MYSORE and in the matter of CHARLES WASHINGTON MERRILL, of Berkeley, Alameda County, California, United States of America, Metallurgical Engineer, an inventor.

I, the abovenamed CHARLES WASHINGTON MERRILL, do hereby ordain constitute and appoint RUPERT REMFRY, and HAMILTON REEVES REMFRY, both of Calcutta, British India, - - as my Agents and Attorneys to apply for and obtain from the Government of MYSORE and keep in force an Exclusive Privilege or Letters Patent for an improved process for precipitating and recovering valuable materials from solutions and particularly metals from hydrometallurgical solutions, and I authorise them to sign my name to such papers and writings and do such acts regarding the same, including the appointment of a substitute or substitutes, as may be necessary or expedient.

Dated this 21st day of March 1911

Signed, Sealed and Delivered at New York City

Charles Washington Merrill

In the presence of

Witness

John Trench
59 Wall St
New York
Attorney at Law

Witness

Willard Parker Butler
59 Wall St
New York City
Atty at Law

SOLICITORS & PATENT AGENTS
REMFRY & SON.
CALCUTTA.

4866
17/5/11

G.R.S. 29A]

(10)

19 .

From

Secy. to the Govt. of His Highness
The Maharaja of Mysore,
Genl. and Rev. Dept.

To

Supdt of stamps

Dated

Despatched 20. 5. 11

Received

General No. C 6794
Gen No. 270-10-7
Enclosure No.

Has the honor to acknowledge the receipt of the two Powers of Attorney forwarded with ~~your~~ his letter no 185 dd 13. 5. 1911.

B.D.

16/5/11
2 C/Hs Secy

Chd. 16/5/11

GPB—20,000—24-10-10.

(11)

M.G.D. 13] MYSORE GEOLOGICAL DEPARTMENT.

Dated Bangalore, 6 – June 1911.

No. 2437
Encls. 2.

D 5-137
9.

G.M. 270-10-8

From

E. W. WETHERELL, Esq., A.R.C.S., F.R.P.S.L., F.G.S.,
Offg. State Geologist in Mysore.

To

C.S. Balasundaram Iyer, Esquire, B.A.,
Offg. Secretary to the Government of His Highness
the Maharaja of Mysore, Genl. & Rev. Depts.

Sir,

In reply to your letter No. G.6480/G.M. 270-10-4 dated 8th May 1911, I have the honour to forward herewith the report of the Offg. Chief Inspector of Mines in Mysore on the application of Mr. Charles Washington Merrill of California for leave to file a specification of his inventions for "An improved process for precipitating and recovering valuable materials from solutions and particularly metals from Hydrometallurgical solutions".

2. With regard to para 2 of the report I may perhaps observe that the suggestion to call for a concise description of the claims in the case of Mr. Merrill's other application reported upon separately in my letter No. 2436 dated 6th June 1911, and for which the grant of the leave applied for is recommended seems to be the result of the perusal of the claims in the present case.

3. I agree with the Offg. Chief Inspector of Mines that it would be better in all cases where a number of alternatives

and improvements are contained in the application that a short and clear statement should be appended to the application.

4 The specification is herewith returned.

I have the honour to be,

Sir,

Your most obedient servant,

E W Mitchell

Offg. State Geologist in Mysore.

(13)

Case B.

Report on an application of Charles W. Merrell of Berkeley, Alameda County, California, for leave to file a specification of an invention for "An improved process for precipitating and recovering valuable materials from solutions and particularly metals from hydrometallurgical solutions".

(1) This application deals at such length and in such detail with the above improved process and with so many alternatives, that it is difficult to follow the various claims put forth by the applicant.

(2) In both these cases (A & B) a more concise description in an abbreviated form may be called for, giving the essential particulars only of the claim put forward before leave is given to file the specifications in either case.

Signed / R, Bocquet,
Offg. Chief Inspector
of Mines in Mysore.

Owrgaum,
12th May 1911.

Copy.

E W Merrell

Offg. State Geologist in Mysore.

31st. 5: 1911.

Bundle B
Suit No. 55 (14)

Reg'r. no. 6 of 1910-11

APPLICATION

To

THE DEWAN OF MYSORE

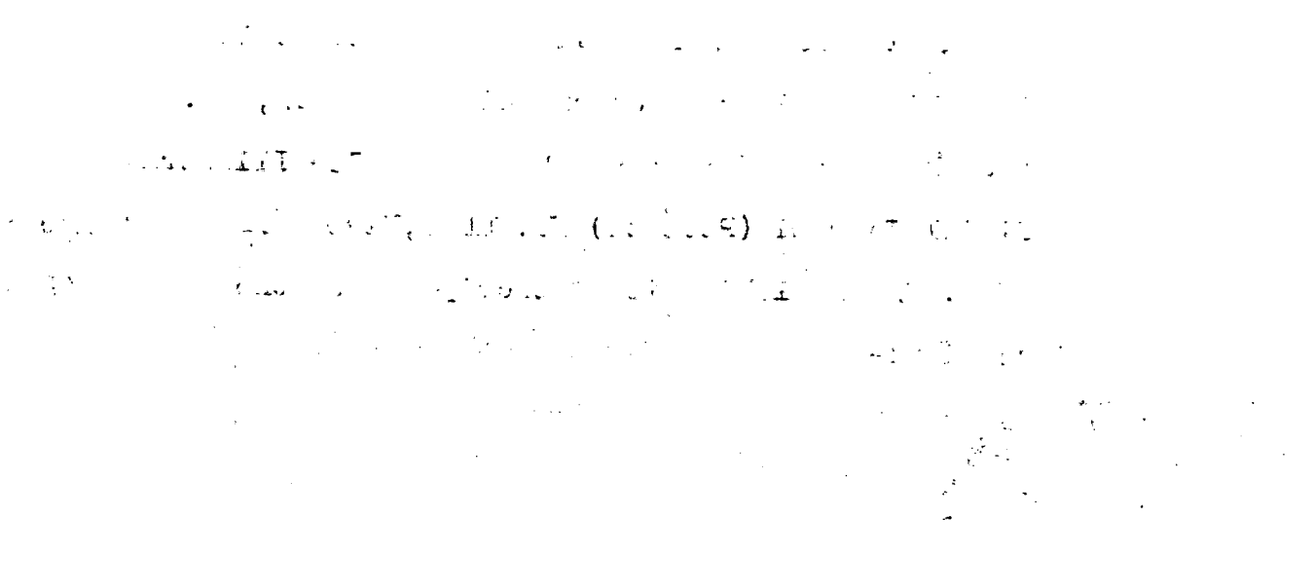
The Application of CHARLES WASHINGTON MERRILL, of Berkeley, Alameda County, California, United States of America, Metallurgical Engineer, for leave to file a Specification under Part 1 of The Inventions and Designs Regulation, 1894.

I. The applicant is in possession of an invention for an improved process for precipitating and recovering valuable materials from solutions and particularly metals from hydrometallurgical solutions,
he is the inventor thereof; and to the best of his information and belief the invention is new within the meaning of Part 1 of the Inventions and Designs Regulation, 1894; and no circumstance exists which, if the applicant be authorized to file a Specification and files it in accordance with that Part will disentitle him to an exclusive Privilege thereunder in respect of the invention.

The Applicant has applied for a Patent in the United Kingdom in respect of this Invention, No. 2801 dated the 3rd February 1911 See Illustrated Official Journal (Patents) No. 1151, Page 154

2. The following is a description of the invention:-

SOLICITORS & PATENT AGENTS REMFRY & SON. CALCUTTA.



My invention relates to an improved process for precipitating and recovering valuable materials from solutions and particularly metals from hydrometallurgical solutions, as well as to apparatus in which the same is conducted. A process of precipitating and recovering materials from solution has been already employed, which consisted broadly in adding to the solution to be precipitated a precipitant while in motion, conducting the mixture without rest , or without contact with the atmosphere to a filter and then separating the solid from the liquid in said filter.

The object of this process was primarily to precipitate and recover materials from solutions by means of the use of zinc bearing materials as precipitants under conditions which make for increased efficiency as compared with earlier processes.

Now I have discovered as a result of the practical application of the invention referred to above, that it is desirable to maintain the reducing conditions not only to the entrance of the filter press itself, but also throughout the precipitation and filtration in such filter. In the methods heretofore used it has been found, first, that some mixtures filter so freely as not to keep the upper part of the container filled with the mixture, which upper portion of the container thereupon becomes occupied by atmospheric air or other oxidizing gases, which frequently are held dissolved in the cyanide solution which is being precipitated, second, that it is not always possible in the practical operation of reduction works, to deliver to the filter press continuously a sufficient feed of the mixture to

(16)

keep it full, and third, that when the filter press is not in continuous use, which frequently occurs for various reasons, the same tendency exists, in the event of any leakage, for the material in the upper part of the containers to be displaced by air.

When the filtration has been conducted as heretofore in filters discharging at the bottom, all of the above difficulties may occur, and the result thereof is that the contact of the oxygen with the mixture, or its unfilterable component, oxidizes the precipitate and the precipitant contained in the press, and thus decreases the efficiency of precipitation, and increases the cost of the precipitant, as that portion of the latter which is oxidized is unavailable for future precipitation.

I have found any tendency to oxidation during the process to be so disastrous, that where it has been admitted through any of the above causes or through mechanical defects in the piping or pumps used in the process, or through any other causes, the precipitation may not only be completely ineffective, but a re-solution of the valuable metals previously precipitated and collected in the filter, has occurred, so that the precipitated solution upon emerging from the filter has, in certain specific instances, when air has been purposely admitted to the suction chamber of the pump, exceeded the value in precious metals of the same solution before the precipitant was added to it.

The object of this invention is, therefore, to improve the process previously employed, by maintaining reducing conditions throughout the entire process of precipitation and collection of metal bearing material from its solution,

and particularly from cyanide solutions of precious metals. It also has for its object the diminution of the time required in earlier processes to remove the deterrent coating which frequently exists on finely divided zinc, or in other words to remove this coating either previous to the use of the precipitant in the process or during the process, by mechanical means, and also to increase the surface of the precipitant by increasing its already fine state of division.

The process is conducted in similar types of apparatus as have heretofore been employed for the purpose with the possible addition of a device for the attrition of the precipitant, up to the point where the mixture enters the filter. Thereafter the process differentiates from the former, in that the filter is kept constantly full of the mixture. Various means may be resorted to for keeping the press full of liquid, anyone of which may be employed at will. Thus, for example, a bottom discharge may be employed in connection with a guage on the top of the press and with devices for throttling the discharge and keeping the press full as shown by the guage. Again, a bottom discharge may be used connected by means of pipes or hose so as to discharge at a point above the top of the press, or an ordinary discharge may be employed at or near the top thereof. Anyfilter or filter press from which the atmosphere is completely excluded and which is capable of being maintained full of the mixture during the operation of the filtration, may be used in connection with this process.

In practice I prefer to use a zinc bearing material as a precipitant, such as finely divided zinc or zinc dust, or

both. But any desired chemical or metal having the quality of displacing or precipitating that certain material, which it is desired to recover ,from its solution may be used.

Hitherto in carrying out such process a receiver has been provided for the unprecipitated solution, a receiver or mixer for the precipitant, and suitable devices for the conveyance of said solution to a filter. The precipitant may be introduced at any point between the receiver and the solution outlet of the container in which the contact between the solvent solution and the material to be dissolved takes place, or it may be introduced into the receiver for the unprecipitated solution by means of any suitable arrangement, or it may be led to any point between said receiver, and the discharge of said filter. In any event the mixture received into the filter is there separated into solids which are retained therein and effluent liquid or filtrate which is discharged therefrom. The method of conducting the process and types of apparatus preferably employed in connection therewith are described in the accompanying ———————— drawings forming a part of this application, in which Fig. 1 is a diagram showing the general conduct of the process, Fig.2, a diagram showing the devices for the treatment of the precipitant connected with the suction pipe of the pump; Fig.3 a diagram showing the same devices connected with the discharge pipe or the pump, Fig. 4 is a diagram showing suitable devices for conveying the precipitant to the receiver for unprecipitated solution; Fig. 5 is a diagram showing the precipitant discharging into the outlet of the

pump, between the pump and the filter; Fig. 6 is a diagram showing a discharge into the suction pipe of the pump; Fig. 7 shows a side elevation of a suitable type of press with the filter plates and containers assembled therein, with an open top and closed bottom delivery; Fig. 8 is a front end elevation of the press; Fig. 9 is an elevation of one of the containers; Fig. 10 is a vertical elevation of the same; Fig. 11 is a detail view showing a modified form of filter plate; Figs. 12 and 13 are elevations, Fig. 14, a detail, and Fig. 15 is a sectional elevation of a filter plate; Fig. 16 shows a side elevation of the press with the filter plates and containers assembled therein with an open top and open bottom delivery showing alternate filter plates provided with bottom discharges; Fig. 17 is a similar partial side elevation showing each filter plate provided with a bottom discharge; Fig. 18 is a front end elevation of the press; Fig. 19 is an elevation of one of the containers; Figs. 20,21,22 and 23 are elevations, and Fig. 24 a detail of types of filter plates. Fig. 25 is a side elevation of a press with the filter plates and containers assembled therein, with a closed top delivery and a closed bottom delivery. Fig. 26 is a front end elevation of this type of press. Fig. 27 is an elevation of one of the containers; Fig. 28 is a side elevation of the container shown in Fig. 27; Figs. 29 and 30 are elevations of the type of filter plates used; Fig. 31 is a vertical sectional elevation of the filter plate shown in Fig. 30 on the line 7-7 of that figure; Fig. 32 is a detail view on the line 8-8 of Fig. 29; Fig. 33 is a detailed view showing a modified form of filter plate; Fig. 34 shows a

side elevation of the press with the filter plates and containers assembled therein, with a closed top delivery and an open bottom delivery showing alternate filter plates provided with bottom discharges; Fig. 35 is a similar partial side elevation showing each filter plate provided with a bottom discharge; Fig. 36 is a front and elevation of the press; Fig. 37 is an elevation of one of the containers; Figs. 38,39,40 and 41 are elevations, and Fig. 42 a détail, of filter plates.

Similar letters refer to similar parts throughout the several views.

The conduct of the process will be best understood by reference to Figure 1 of the drawings.

In this Figure, U represents one or more receivers for the unprecipitated solution into which the zinc, fed by any suitable means may be introduced. These receivers may be equipped with any suitable device for agitation of the mixture or the zinc may be fed to the solution at or near the point of exit from the receiver whence the mixture passes through the pipe C preferably to a pump P and thence through the discharge pipe D to a filter F equipped with suitable devices which prevent the admission of oxidizing gases. From the filter the filtrate passes by means preferably of a trough or pipe L discharging through G to any suitable receiver E for precipitated solution.

In the type of apparatus illustrated in Figure 1 the tanks U are interposed between the containers in which the dissolution of the valuable contents from the crushed ore takes place, and the filter; and the zinc feed H is shown in this particular diagram leading to the tanks U, but

I do not limit myself to any particular form of apparatus nor to adding the zinc at any particular point, but I may add it either wet or dry at any point in the travel of the effluent solution between the container for crushed ore in which the dissolution of the valuable material takes place, and the filter in which the precipitate is collected, or I may add it direct to such filter. Neither do I limit myself to any particular method of conducting the unprecipitated solution from the container in which the dissolution takes place, to the filter. In the diagram Fig.1 the filter is shown with a bottom feed and top discharge but I do not limit myself to any particular type of filter.

In the method of treatment outlined in the diagrams, Figures 2,3,4,5 and 6, provision is made for the removal of any deterrent coating which may exist on the precipitant and in thses Figs. U is again the receiver for the unprecipitated solution, Z is the receiver for the precipitant which is used in the arrangements illustrated in Figs. 2 and 3; I is the pipe through which the precipitant and emulsifying liquid is introduced into the receiver; H is the duct through which the precipitant is conveyed to the unprecipitated solution in motion; P is the pump; C is the suction pipe of the pump; and D is the discharge pipe of the same; F is the filter press of one of the types hereinafter described, shown in this case with the feed inlet at the top and discharging at the bottom into the receiver E for the precipitated solution, by means of the pipe G; J is the discharge pipe from the receiver; B is the pipe through which the solution to be treated is fed into the receiver.

In Fig. 2 A is any suitable grinding apparatus which is connected with the suction pipe of the pump. Fig. 3 shows the grinding apparatus A connecting with the discharge pipe of the pump. In Fig. 4 the apparatus A is arranged between the receiver U and the precipitant supply pipe I. In the method shown in Fig. 5 the grinding apparatus A is shown placed between the pump P and the filter F, whereas in Fig. 5 the grinding apparatus is shown placed between the pump P and the receiver U.

The precipitant may be subjected to attrition in any suitable grinding apparatus whence it is introduced as above. The ordinary form of barrel ball crusher is suitable, and if desired the cyanide solution or other liquid which is used to emulsify the precipitant may be mixed with it in the grinding apparatus. In practice, the grinding apparatus may be interposed at any point between the receiver and the solution outlet of the container in which the contact between the solvent solution and the material to be dissolved takes place, or it may be interposed at any point between the receiving tank for unprecipitated solution and the filter, or it may discharge under pressure by means of an independent inlet directly to the filter. In cases of particularly low strength cyanide solutions, or cyanide solutions containing very small amounts of metals to be precipitated, which, under ordinary conditions, are difficult to precipitate by means of metallic replacement, it may be particularly desirable to grind the precipitant in contact with all of the solution to be precipitated thus not only abrading off the deterrent coating, but also increasing the intensity and duration of the agitation of the mixture. That is, to pass all of the solution so to

be precipitated through a grinding apparatus such as a tube mill preferably interposed between the inlet of a suction pipe of a pump and said pump, or between the point of discharge from said pump and the inlet to said filter, or in case a gravity flow is used, at any point between the receiver for unprecipitated solution and the discharge of the filter. Or it may be interposed between the receiver and the solution outlet of the container in which the contact between the solvent solution and the material to be dissolved takes place.

The precipitant is fed through the pipe I and in the arrangement shown in Figs. 2 and 3 passes into the receivers Z; thence it is fed through the pipe H into the tank U. The solution to be treated is fed into the tank U through the pipe R. The pump is preferably continuously operated, and causes the liquid to flow through the suction pipe C and through the discharge pipe D into the filter F whence the filtrate flows through the pipe G into the tank E from which it is discharged through the pipe J to any desired receptacle. The grinding apparatus A causes the particles of the precipitant to be thoroughly abraded and where connected with the discharge or suction pipes of the pump as shown in Figures 2 and 3, constantly intermingled with the solution as it passes through the apparatus on its way to the filter. It will be readily seen that the same result will be attained in the other arrangements illustrated in Figs. 4,5 and 6 where the grinding apparatus A is disposed at other points between the precipitant supply pipe I and filter F. The gist of the present form of treatment consists in the fact that the precipitant is subjected to a mechanical treatment while passing with any liquid through

the apparatus employed for producing the mechanical treatment, or it may be ground dry.

I am aware that zinc bearing materials have been used to precipitate metals from cyanide solutions by agitation in tanks and after agitation the mixture has been passed through filters, the remaining contents of the tank being at comparative rest until all of the mixture has been filtered, but this is open to serious disadvantages and I am not aware that the combination of conducting the mixture of solution and precipitant without rest, to a filter, and there separating the solid from the liquid under the precautions described for preventing contact with oxidizing gases has heretofore been employed, nor its advantages recognized.

The types of apparatus preferably employed for separating the unfilterable material from the mixture of filterable and unfilterable matter in the hereinbefore described process are described in Figures 7 to 42, inclusive. These views show improvements in pressure filters in which the precipitation and collection of material from hydro-metallurgical solutions and the treatment of such material is preferably effected. The principal object in employing the types of filter presses hereinafter described is to overcome certain disadvantages which are found to exist in practice, in conducting the process hitherto employed and the improved process hereinbefore described.

The advantages of maintaining reducing conditions throughout the precipitation and collection of precipitate have been already recognized and provision has been made for the maintenance of these reducing conditions up to

the time that the mixture of solution, precipitant and precipitate is delivered to the inlet channel of the pressure filter.

Now the mechanical defects which have developed in apparatus hitherto employed for this purpose are first that the flow of the mixture through some at least of the cores within the side walls of the containers sometimes becomes impeded thus preventing the delivery of a supply of mixture adequate at all times to keep the container filled during the operation of the filter press; second, some mixtures filter so freely that the bottom discharge of the filtrate results in the press not being kept full of the mixture of filterable and unfilterable matter; third, it is not always possible in the practical operation of reduction works to deliver to the filter press continuously a sufficient feed of the mixture of filterable and unfilterable material to keep it full, and, fourth, when the filter press is not in use the practical difficulty of preventing the discharge cocks from leaking results in at least a portion of the liquid filterable portion draining out. The result of any of the above mechanical defects is that oxygen of the atmosphere occupies the space that should be filled with the mixture or its filterable component, and the effect of the contact of the oxygen with the mixture or its unfilterable component is to oxidize the precipitate and precipitant contained in the press and thus decrease the efficiency of precipitation and increase the cost of precipitant , that portion of the latter which is oxidized being unavailable for further precipitation. Now I have discovered that when, instead of the ducts

leading from a port within each container and preferably located at the bottom thereof, to a horizontal feed channel located above the outlet, and preferably in an upper corner of the container, as was the case in filter presses as hitherto constructed, a pipe or an independent duct, preferably composed essentially of non-metallic material which is also non-conducting as to galvanic action, is employed leading downward from the feed channel into the bottom of the container adjacent thereto, and a top discharge, as distinguished from a bottom discharge, is employed in combination therewith, all of the difficulties above referred to are minimized and the results of the process when carried out in this apparatus are more satisfactory.

In the drawings four different types of discharge are shown. In Figs. 7 to 15 inclusive an open top and closed bottom delivery is shown, in Figs. 16 to 24 inclusive an open top and open bottom delivery is shown, in Figs. 25 to 33 inclusive a closed top and a closed bottom delivery is shown and in Figs. 34 to 42 inclusive, a closed top and an open bottom is shown. Certain parts of the press are alike in all four types, hence these will for convenience be described but once.

General Characteristics: In Figs. 7,16,25 and 34 of the drawings, s represents what is for convenience termed the stationary end of the press; h the side bar of the press; j is a screw carrying a distance piece j' which forces the movable end or follower head t forward in the side bars by means of the wheels i or any other convenient mechanism; x x are the exterior frames of a series of containers, and g g are the filter plates, and k is the

rear stationary end of the press. For the purpose of moving the follower head the hand wheel z is provided. By turning this hand wheel the follower head t is caused to slide backward and forward upon the frame h which is sometimes desirable in very large presses. All of these devices and parts are common to the ordinary form of filter press. These elements when set up compose the filter press, substantially as shown in these four figures. For convenience, the different parts of the apparatus will be described separately.

In practice it is advisable to combine with the upper discharge, a bottom outlet to the exterior from appropriate plates so that the liquid contents of these chambers may be drained or forced out before opening the press and removing the solid contents thereof. In cases where the outlet aforesaid is intended for drainage purposes only, an opening to the exterior from the bottom of alternate filter plates, as is shown in Figs. 7,16,17,25,34 and 35 is sufficient ordinarily to drain every chamber.

When, however, the liquid filters so freely as to make it impracticable to secure outlets of adequate area from the top of the filter plates, it then becomes necessary to provide an additional or auxiliary delivery, in which case the alternate drainage openings in appropriate filter plates may be used as such an auxiliary exit or delivery during the operation of the press.Furthermore, it is found that certain material filters so freely as to make the alternate openings inadequate for the purposes even of discharge as an auxiliary delivery. In such cases, in order to make an adequate delivery an opening to the exterior

may be provided from each plate as is shown in Figs. 11, 17 and 33 instead of from alternate plates.

The filter Plates: The filter plates are preferably of the type of construction as shown in Figs. 12,13,14,15,20,21, 22,23,24,29,30,31,32,38,39,40,41 and 42, which show the types of filter plates adapted to be used in connection with the form of container hereinafter described. Each filter plate is provided with an opening d, through which the solid and semi-solid or unfilterable material to be filtered is introduced, which channel or inlet is of the same general character as that in the containers and becomes continuous when the various parts are put together in the filter press. Each filter plate may be and ordinarily is provided with an opening a through which the liquids, vapors or gases enter for any treatment of the unfilterable material after its collection in the press, and which, with the corresponding opening a in the containers hereinafter described, when the filter plates are placed together in the filter press, form a continuous channel. Each alternate filter plate is ordinarily provided with a port a' as shown in Figs. 12,22,29 and 40 through which the liquids, vapors or gases from the channel or inlet a may be introduced behind the filter cloths of each such alternate filter plate. The surfaces of the filter plates are provided, as shown in Figs. 12,13,15,20, 22,29,30,31,38 and 40, with any convenient arrangement of grooves or corrugations. In ordinary cases a discharge opening is provided in the bottom of appropriate filter plates which may be used either as a drainage outlet before opening the press to remove its solid contents or as an

additional delivery when required during the operation thereof. It is ordinarily only necessary to have an opening behind one of the cloths which form the closures on both sides of a container in order to properly drain such container.

In case a closed top delivery is employed, as shown in Figures 25 and 34, 8 8 are the outlets at or near the top in each of the filter plates, as shown in Figs. 29,30,38 and 40, which are provided for the effluent liquids, vapors or gases. They terminate in each case in the opening 0 which forms a continuous channel when the press is put together, and which terminates in the pipe o' controlled by the valve o^2.

When an open top delivery is employed as shown in Figs. 7 and 16, 8 8 are the outlets in each of the filter plates, as shown in Figs. 12, 13, 20 and 22, which are provided for the effluent liquids, vapors or gases. They terminate in each case in a boss q, to which are fastened stop cocks p, as shown in Figs. 12,13 and 8, and 18,20 and 22 controlled by the handles r, which discharge into a trough v of suitable dimensions. In each case d represents the inlet through which the mixture of solid and semi-solid or unfilterable material with liquid is introduced. In this construction, in practice the openings 8 will be placed, the former at or near the top of the filter plate, as shown in the drawings, but their precise location is no part of the present invention.

Where a closed bottom delivery is employed there is an ordinary drainage port 9 provided from each alternate plate into the channel y at or near the bottom of each

filter plate, as it is only necessary to have an opening from one side of any one filter cloth. This channel becomes a continuous channel when the plates and containers are assembled in the press, and terminates in the pipe y' closed by the valve y^2.

In case an open bottom delivery is employed, 9 9 are the outlets at the bottom of appropriate, preferably alternate, filter plates, each of which terminates in the boss q', to which are fastened the stop cocks p' as shown in Figs. 16,17,20,34,35 and 38, actuated by the handles r' or in any other convenient way. These stop cocks discharge into a trough v, which in turn discharges through the duct m into a suitable receiver. In case the openings 9 are used in connection with each filter plate, as shown in Fig. 17, each opening is closed by corresponding stop cocks in the same manner as shown in Fig. 16.

Containers: The type of container employed in the construction shown is shown in Figs. 9,10,19, 27 and 37. x x are the exterior frames of the containers. These fit into the frame of the press between the filter plates as shown in Figs. 7,16,25 and 34. d is the horizontal feed channel located in the centre at the top of the container through which the mixture of filterable and non-filterable component is introduced into the press. a is an inlet through which the liquids, vapors or gases may be introduced behind the filter cloths. When a series of containers is put together in a filter press, except in the type where an open discharge is shown, the openings a, d and y make three continuous openings or channels through the press which are closed at the end in any convenient manner.

Instead of ducts within the side walls of the containers which are used in certain of the forms of containers which I have hitherto employed, I employ in the present case an independent and preferably removable duct f of any suitable material, preferably a non-metallic material pipe, or of any combination of such materials which is and are non-conducting as to galvanic action, which leads downward from the feed channel d into the bottom of the container and terminates adjacent thereto. The duct f preferably composed of hose and a pipe nipple f' is ordinarily removable and fits into a suitable screw thread opening in the channel d and may be of any definite size, and in practice any number of these pipes may be kept in stock for use in connection with any one filter, and hence when they become choked or stopped up they may be readily removed and another pipe inserted for use while those removed are being cleaned. In this way the press does not have to be kept out of service for an unnecessarily long time.

When particularly heavy precipitates are to be filtered it may be advisable in the case of some or all of the containers employed to insert the upper extremities of the pipes f into the channel d a sufficient distance to prevent the segregation or settling of the heavier precipitates into the first containers of the series in the press.

The Method of Operation: The mixture of filterable and unfilterable material is charged under pressure through the pipe e, controlled by the inlet cock e' into the feed channel d. The liquid,gas or vapor employed is fed into the channel a through the pipe c, controlled by the valve c' as shown in Figs. 7,16,26,28,34 and 36. In order to permit

the discharge of any gas which may be formed in the press at any time, a vent u is provided with the cock u' through which such gases may escape through the channel a with which this vent is directly connected. When it is desired to permit the escape of such gases, the valve c' is closed and the valve u' is opened.

The treatment channel a opens through the ports a' ordinarily to the filtering surface behind the cloths of alternate plates, being ordinarily in alternate series with the plates carrying stop cocks at the bottom, so that when the plates are put together in the press there will be a drainage opening from each plate which has no inlet for liquid, vapor or gas, and there will be no drainage outlet from those plates which have the openings for such liquid, vapor or gas.

Where it is not necessary to treat the unfilterable material after its collection in the press by means of liquid, vapor or gas admitted through the channel a, said channel and ports therefrom may be entirely eliminated, and all the plates may be provided with the outlets 9 similar to the construction shown in Figs. 11 and 33.

As conditions may arise where it may be desirable to effect a bottom discharge from every plate instead of from alternate plates, or from only one of several plates, I do not limit myself to any precise number, and may also eliminate the bottom discharge entirely.

Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that what I claim is:-

1. The process for precipitating and recovering material from solution which consists in subjecting a precipitant to mechanical treatment for the removal of any deterrent coating from the surface of the particles thereof, and precipitating said solution while in motion by said precipitant, conducting the mixture without rest to a filter, and separating the solid from the liquid in said filte.

2. In the process set forth in claim 1 adding the precipitant to the duct through which the solution is being conveyed to a filter.

3. In the process set forth in claim 1 forcing the precipitant into the pressure filter with the solution.

4. In the process set forth in claim 1 adding the precipitant to the duct in which the solution to be treated is being conveyed and forcing the mixture into the top of the pressure filter.

5. In the process set forth in claim 1 adding the precipitant to a solution in motion at a point adjacent to the outlet of said solution from a receiver, and forcing the mixture through a pressure filter, and separating the solid from the liquid in said filter.

6. In the process set forth in claim 1 excluding the mixture of solution to be treated and the precipitant from contact with the atmosphere during the whole of such process.

7. In the process set forth in claim 1 adding the precipitant to the solution to be treated while in motion at a point adjacent to a suction pipe of a pump, and then conducting the mixture to the top of the pressure filter.

8. In the process for precipitating and recovering

metals from cyanide solutions in the manner set forth in claim 1 the employment of zinc as the precipitant and the addition of same in the form of an emulsion to said solutions while in motion.

9. In the process set forth in claim 8 mixing the zinc precipitant with a liquid in a grinding apparatus, adding a liquid continuously to said grinding apparatus, and discharging the emulsion from said grinding apparatus into said solution in motion.

10. In the process for precipitating and recovering metals from cyanide solutions in the manner set forth in claim 1 the employment of finely divided zinc as the precipitant.

11. In the process for precipitating and recovering material from solution in the manner set forth in claim 1 the addition of the precipitant to said solution in motion at a point adjacent to the suction pipe of a pump.

12. In the process of precipitating and recovering metals from cyanide solutions in the manner set forth in claim 1 mixing a suitable zinc precipitant with a liquid in a receiver, adding a liquid continuously to said receiver, discharging the emulsion from said receiver into said solution in motion, subjecting the zinc precipitant to mechanical treatment for the removal of any deterrent coating from the surface of the particles thereof, conducting the mixture without rest to a filter, and separating the solid from the liquid in said filter.

13. A container for use in a pressure filter provided with a pipe of convenient size, leading from a feed channel located above the bottom of the container and terminating within the same at or near said bottom

14. Making the pipe set forth in the preceding claim removable.

15. Causing the upper end of the removable pipe set forth in claim 13 to extend a sufficient distance into and above the bottom of the feed channel to which same is applied to prevent the segregation of the heavier precipitates in the container.

16. Making the pipe set forth in claim 13 non-metallic.

17. Connecting the pipe set forth in claim 13 with the feed channel to which same is applied by means of a suitable screw device.

18. The combination in a pressure filter of a series of suitable filter plates, a series of containers each provided with a duct leading from a feed channel located above the bottom of the container and terminating within the same at or near said bottom, and devices whereby the filtrate is discharged by means of a suitable delivery at or near the top of appropriate filter plates.

19. In the arrangement set forth in the preceding claim the employment of a suitable opening from appropriate filter plates at or near the bottom thereof for the purposes specified.

20. In the arrangement set forth in the preceding claim making the opening from appropriate filter plates at or near the bottom thereof into a closed delivery channel, for the purposes specified.

21 In the arrangement set forth in claim 19 the employment of a suitable opening from appropriate filter plates at or near the bottom thereof into a suitable delivery channel, controlled from the exterior of the press, for the purposes specified.

22. In the arrangements set forth in claims 18 to 21 inclusive making the delivery whereby the filtrate is discharged at or near the top of appropriate filter plates an open delivery.

23. In the arrangement set forth in the preceding claim making openings in alternate filter plates at or near the bottom thereof.

24. The combination in a pressure filter of a series of suitable filtering surfaces, of a container provided with a duct leading from a feed channel located above the bottom of the container and terminating within the same at or near said bottom, and devices whereby the filtrate is discharged by ~~me~~ means of a suitable delivery at or near the top of appropriate filtering surfaces.

25 In the arrangement set forth in the preceding claim making the delivery at or near the top of appropriate filtering surfaces an open delivery.

26. In the arrangement set forth in the preceding claim making a suitable opening from appropriate filtering surfaces, at or near the bottom thereof for the purposes specified.

27. In the arrangement set forth in claim 25 making a suitable opening from one of the filtering surfaces at or near the bottom thereof.

28. In the arrangement set forth in claim 22 providing a suitable opening to the exterior from appropriate filter plates, at or near the bottom thereof for the purposes specified.

29. In the arrangement set forth in the preceding claim the employment of means for closing the openings to the exterior from appropriate filter plates at or near the bottom thereof for the purposes specified.

30. In the arrangement set forth in the preceding claim

making an opening to the exterior from alternate filter plates at or near the bottom thereof,for the purposes specified.

31. In the arrangement set forth in the preceding claim the provision of means for closing at will the openings to the exterior from alternate filter plates at or near the bottom thereof, for the purposes specified.

32.In the arrangements set forth in claims 18 to 21 inclusive making the delivery whereby the filtrate is discharged at or near the top of appropriate filter plates a closed delivery.

33 In the arrangement set forth in the preceding claim making openings from alternate filter plates,at or near the bottom thereof, into a closed delivery channel,for the purposes specified.

34. The method of maintaining reducing conditions throughout the precipitation of metal containing material, from a cyanide solution,which consists in agitating said solution with a metallic precipitant, conveying the mixture without rest to a filter and excluding oxidizing gases from the mixture during the filtration.

35.The process for precipitating and recovering material from its solution which consists in adding a precipitant to said solution while in motion,conducting the mixture without rest to a filter,and maintaining reducing conditions throughout the separation of the solid from the liquid in said filter

36.In the process set forth in the preceding claim forcing the mixture of solution to be treated and the precipitant into the bottom of a pressure filter.

37.In the process set forth in the preceding claim discharging the filtrate from or near the top of the filter.

I, the Applicant abovenamed, do declare that the facts

a Specification of the invention pursuant to Part 1 of the Mysore Inventions and Designs Regulation, 1894.

Dated this 21st day of March 1911

Charles Washington Merrill.

I, CHARLES WASHINGTON MERRILL, the applicant above named do declare that what is stated in this Application is true to my knowledge, except as to matters stated on information and belief, and as to those matters I believe them to be true.

Charles Washington Merrill.

Fig. 1.

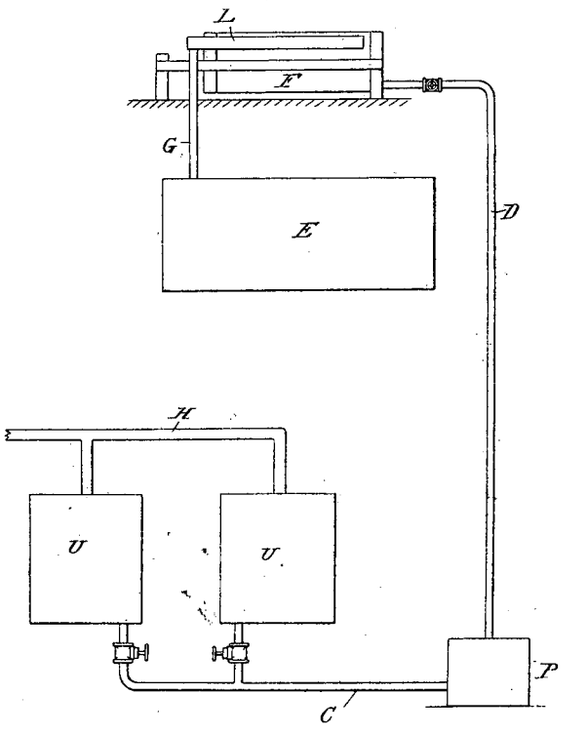


Fig. 4.

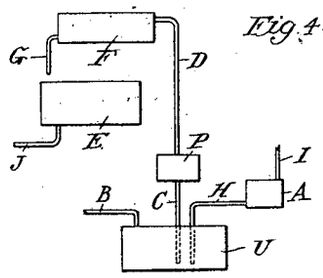


Fig. 5.

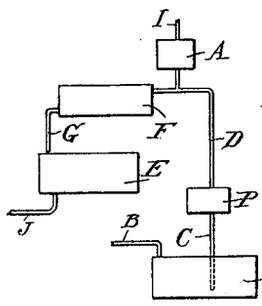


Fig. 2.

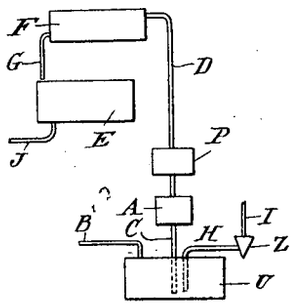


Fig. 6.

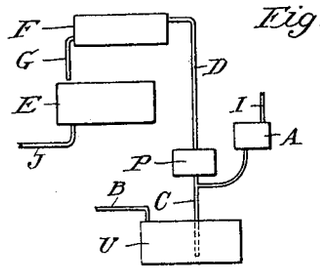


Fig. 3.

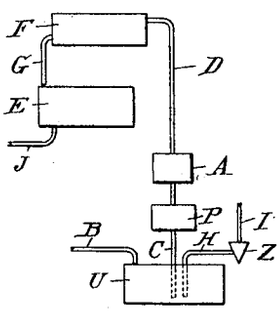


Fig. 7.

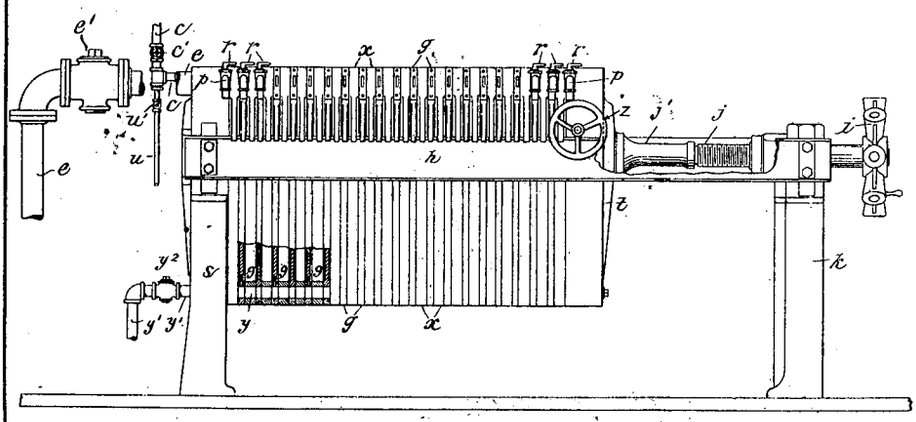


Fig. 8.

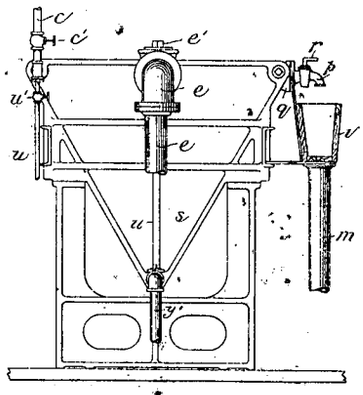


Fig. 9.

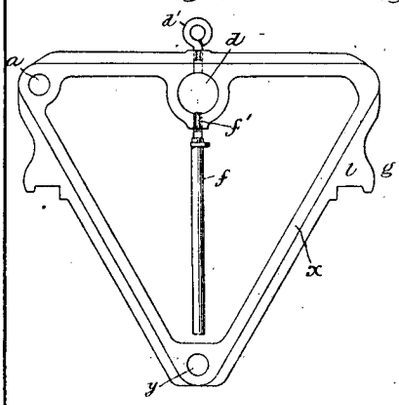


Fig. 10.

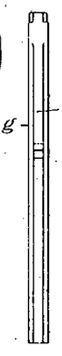


Fig. 12.

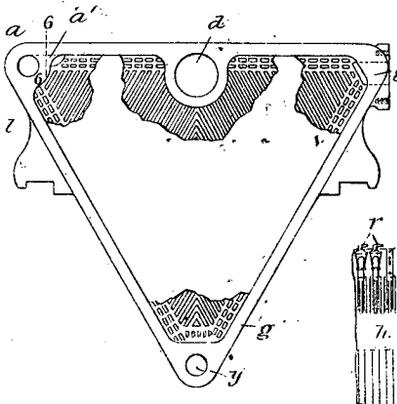


Fig. 11.

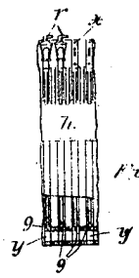


Fig. 13.

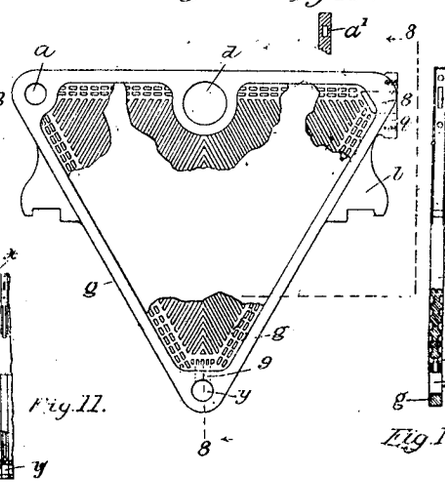


Fig. 14.

Fig. 15.

Fig. 16.

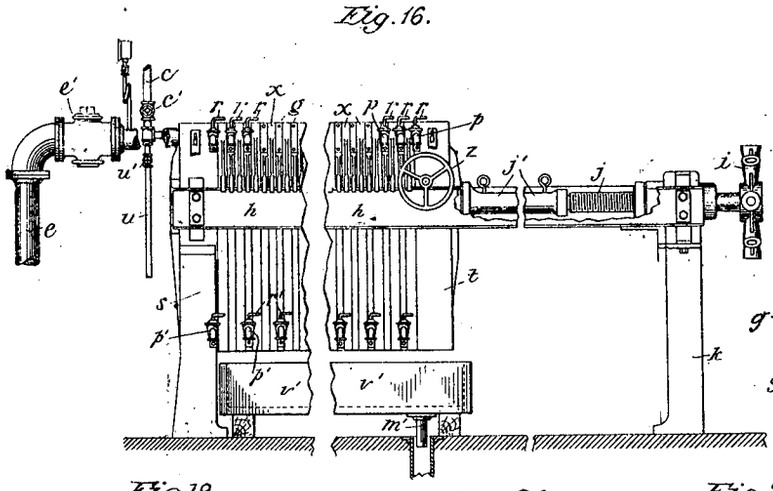


Fig. 17.

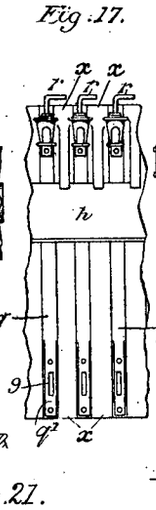


Fig. 18.

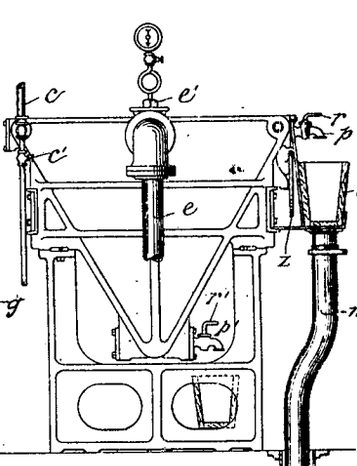


Fig. 19.

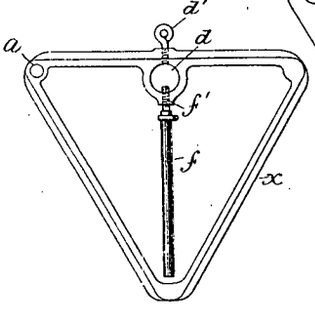


Fig. 20.

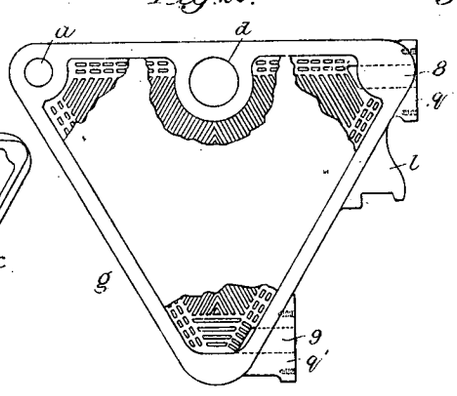


Fig. 21.

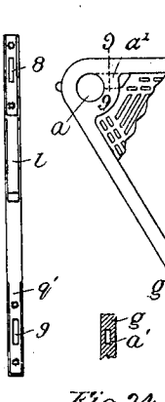


Fig. 22.

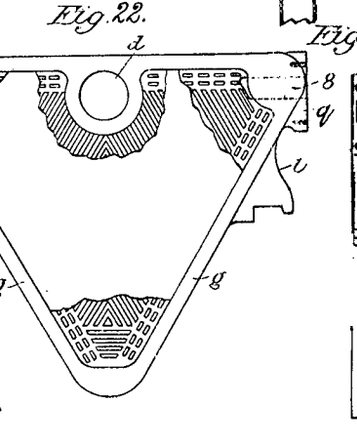


Fig. 23.

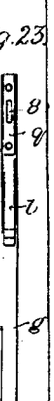


Fig. 24.

Fig. 25.

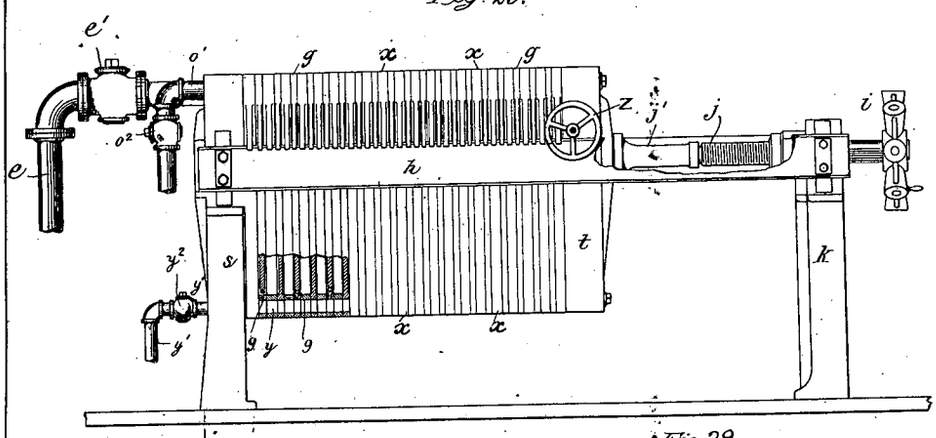


Fig. 26.

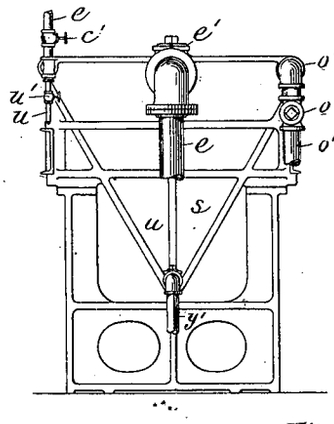


Fig. 27.

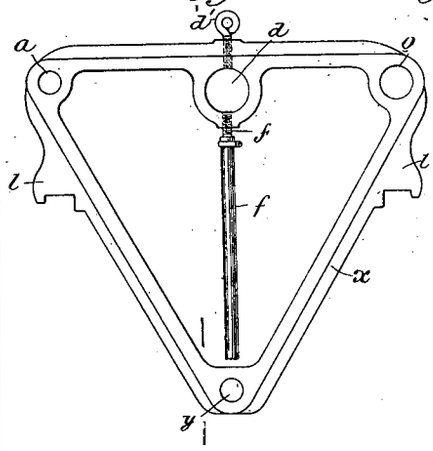


Fig. 28.

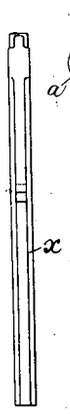


Fig. 29.

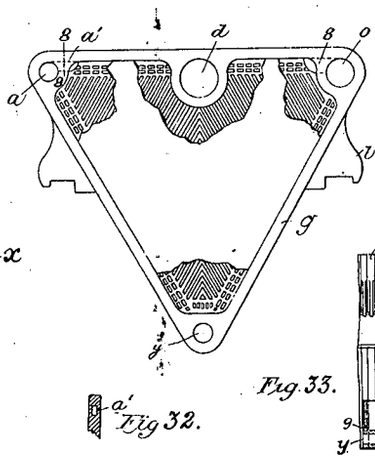


Fig. 30.

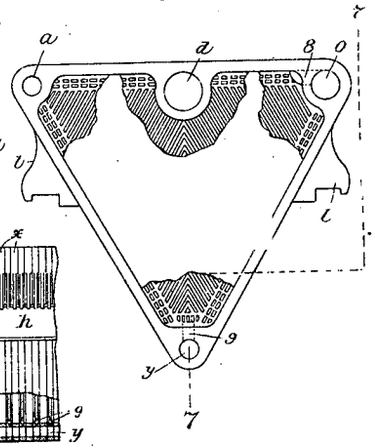


Fig. 31.

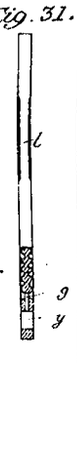


Fig. 32.

Fig. 33.

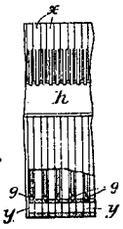


Fig. 34.

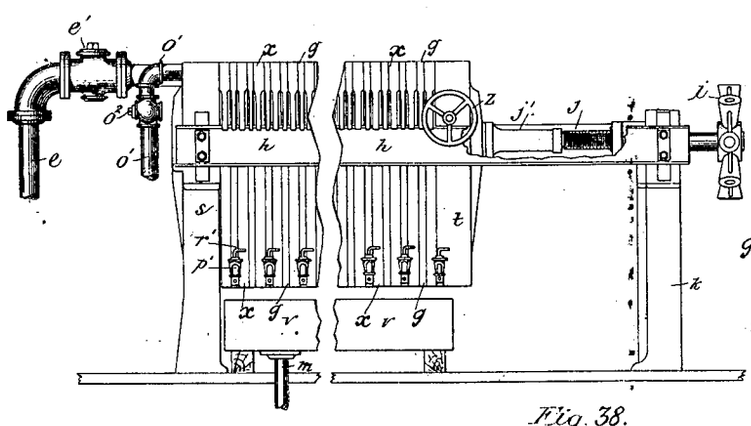


Fig. 35.

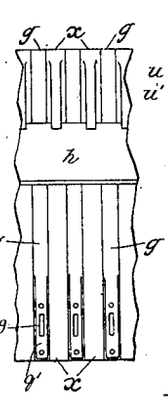


Fig. 36.

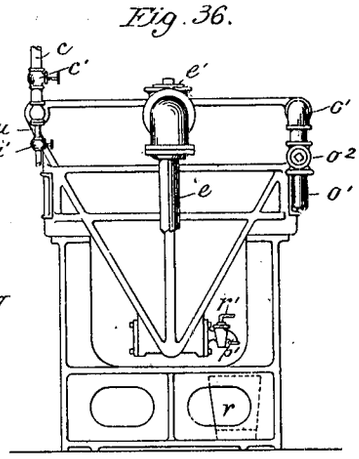


Fig. 37.

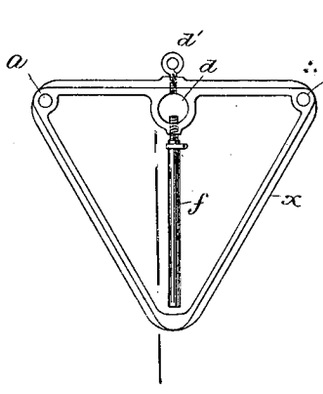


Fig. 38.

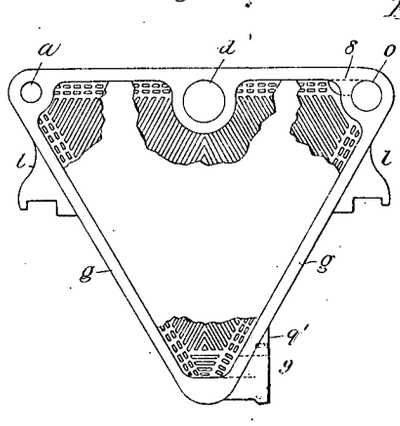


Fig. 39.

Fig. 40.

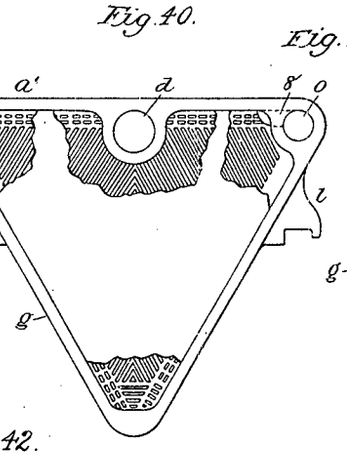


Fig. 41.

Fig. 42.

G.R.S. 29A]

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190 .

From

Secy. to the Govt. of His Highness the Maharaja of Mysore, Genl. and Rev. Dept.

To

Messrs Remfry & Sun,

Dated Solicitors & Patent Agents

Despatched 16.6.11 8. Hastings Street

Received Calcutta.

General No. G 7337.
Gen No. 270-10-9

Enclosure No.

Gentlemen,

With reference to the applⁿ. of Charles Washington Merrill of Berkeley for Leave to file a specification of an invention for "An improved process for precipitating and recovering valuable materials from solutions and particularly metals from hydro-metallurgical solutions", forwarded with your letter of 24-4-1911, I am directed to observe

that the application deals at such length and ~~in its~~ in such detail with the above improved process ~~that~~ and suggests so many alternatives that it is ~~found difficult~~ not easy to follow the various claims put forth. I am therefore to request you to be so good as to furnish me with a more concise description in an abbreviated form (giving the essential particulars only) of the claims put forth in this case as well as in the other case regarding the invention for "An improvement in processes for treating a semi solid material in the containers of filter presses and for removing the same therefrom."

Please see para. 2 of 9-2711-10-5

I have te.

10/6/11

For Celtis Fee

Ans

GENERAL.

DIARY No. 5297

Regd.

1911-1912
SECTION Gen: Mis
FILE No. 270 of 1910-11
ENCLOSURE 10

(44)

To

THE ~~PATENT~~ SECRETARY, TO THE GOVERNMENT OF MYSORE,
~~PATENT OFFICE~~, GENL. & REV. DEPTS.
~~CALCUTTA~~. BANGALORE,
MYSORE.

FROM

REMFRY & SON,
SOLICITORS AND PATENT AGENTS,
CALCUTTA.

Dated CALCUTTA, the 5th June 1912.

Sir,

re C.W.MERRILL. (MYSORE) CASE B.

With reference to the above Application in respect of an Invention for "AN IMPROVED PROCESS FOR PRECIPITATING AND RECOVERING VALUABLE MATERIALS FROM SOLUTIONS AND PARTICULARILY METALS FROM HYDROMETALLURGICAL SOLUTIONS" submitted with our letter of 24th April 1911 and to your letter NO. G7337/G.M. 270-10-9 dated 16th June 1911, we beg to forward herewith Amended Claims in order to comply with such letter and solicit the favour of early issue of the Order granting leave to file Specifications in this matter.

We have the honour to be,

Sir,

Your very obedient servants.

REMFRY & SON

1 Enclo

A.M.

1,000.—17-3-11.

(45

13/6

G.R.S. 26]

2 copies sm File No. 270-11

Serial No, 11

Diary No. of letters replied to 5296+5297

X No. G. 6573

(Eu. 4)

General and Revenue Secretariat

( )

, *the* 19 .

To

The State Geologist in Mysore.

Sir,

Date of issue 14 - 6 - 12

Signed by Mr B. R. Ramaswamiengar

With refce to your letter No. 2437, of the 6th June 1911, I am directed to forward herewith amended claims received in respect of the two inventions described in the margin, of Mr. Charles Washington Merrill of Berkeley, and to request to be informed if the said claims may be accepted and leave to file a specification of each of the inventions granted.

over. 2.

(1) "An improved process for precipitating and recovering valuable materials from solutions and particularly metals from hydro-metallurgical solutions"

2) "An improvement in process for treating a semi-solid material in the containers of filter presses and for removing the same therefrom."

(... 27/8/1910 — bridge file)

SUBJECT.

2. The applications in respect of the said inventions are also forwarded for reference and obliging return together with the information called for above.

I have &c,

12/6/12

For the Secretary

VS. 41

List of enclosures,

Copied by VS 18/6/12

Examined by

GPB—10,000—28-2-11.

24/7 Mr. G.K.

47

M. G. D. 13]

MYSORE GEOLOGICAL DEPARTMENT.

Dated Bangalore 23rd July *1912.*

No. 233

Encl. Letter

DIARY No. 522 B

10/2-1913
SECTION Gen: Mis
FILE No. 270 of 1910-11
SERIAL No. 12

From

DR. W. F. SMEETH, M.A., D.SC., etc.,
State Geologist in Mysore.

To

K.R. Srinivasa Iyengar, Esquire, M.A.,
Offg.Secretary to the Government of His Highness
the Maharaja of Mysore, Gen. & Rev. Depts.

SIR,

In reply to your letter No.G.6573/G.M.270-10-11, dated 14th June 1912, forwarding amended claim in respect of the two inventions of Mr. Charles Washington Merrill, I have the honour to state that in my opinion the amended claims may be accepted and the leave applied for granted in case of No.(2), Viz., - "An Improvement in processes for treating a semi-solid material in the containers of filter presses and for removing the same therefrom".

2. With regard to No.(1) Viz., "An Improved process for precipitating and recovering valuable materials from solutions and particularly metals from hydro-metallurgical solutions", I have the honour to state that in my opinion the amended claims may be accepted, provided the following additions are made, Viz:-

At the end of claim 1, after the words "whole of the process" add the words ":- substantially as described".

The

GPB—100—25-4-12

The beginning of claim 4, should read as follows:-

4. In the containers of the pressure filters, used ~~in~~ in the process set forth in claim 1, the employment of a pipe &c. &c.

The beginning of claim 6 should read as follows:-

6. In the pressure filters referred to in claim 4 the combination of a series of suitable filter plates &c. &c.

---

3. I may add that the object of the amendments to claims 4 & 6 is to make it clear that these claims refer only to pressure filters which form part of the whole process in respect of which a Patent is desired and do not convey or imply any patent rights in respect of pressure filters in general which would be equivalent to including two separate patents under one specification, Viz. a patent for a process and a patent for improvements in pressure filters.

4. If the applicant wishes to secure patent rights in respect of the improvements referred to in claims 4 to 7 which shall be valid for all pressure filters whether used for the process referred to in his specification or not, it will be necessary for him to apply for a separate Patent in which the improvements are detailed and in which claims 4 to 7 may be included.

5. Whether this is done or not, claims 4 to 7 amended as suggested above may be included in the specification now under report after which the leave applied for may be granted.

6. The papers received with your letter under reply are returned herewith.

I have the honour to be,

Sir,

Your most obedient servant,

W. F. Smeeth

State Geologist in Mysore.

C.N.

(Cy for G.M.270 of 1910-11)

(49)

G.R.S. 31]

No. G.659
G.M.271-10-9
(Encl 2)

GOVERNMENT OF H. H. THE MAHARAJA OF MYSORE
GENERAL AND REVENUE SECRETARIAT

Dated Bangalore,...3rd.....August.....1912

FROM

K. R. SRINIVASIENGAR, ESQ., M.A.,
Offg. Secretary to the Government of H. H. the Maharaja of Mysore,
General and Revenue Departments.

To

Messrs. Remfry & Son,
Solicitors and Patent Agents
C a l c u t t a.

Sir,

Gentlemen,

With reference to correspondence ending with your letter dated the 5th June 1912, I am directed to forward herewith Government Order No.G.658/G.M.271-10-8 dated 3rd August 1912 authorising Mr. Charles Washington Merrill of Berkeley in California, U.S.A. to file a specification of his invention for "An Improvement in process for treating a semi-solid material in the containers of filter presses and for removing the same therefrom" and to request that the same may be communicated to the party concerned.

2. As regards his other invention, however, viz., "An Improved Process for precipitating and recovering valuable materials from solutions and particularly metals from hydro-metallurgical solutions", I am to state that the amended claims will be accepted, provided the following amendments are made, viz.,

(1) At the end of claim 1, after the words "whole of the process" add the words "substantially as described".

(2) The beginning of claim 4 should be as follows:-

"4. In the containers of the pressure filters, used in the process set forth in claim 1, the employment of a pipe &c &c"

(3) the beginning of claim 6 should be as follows:-

GPB—2,500—23-7-12

(50)

"6 In the pressure filters referred to in claim 4, the combination of a series of suitable filter plates &c &c ".

3. The object of the amendments to claims 4 and 6 is to make it clear that these claims refer only to pressure filters which form part of the whole process in respect of which a Patent is desired and do not convey or imply any patent rights in respect of pressure filters in general which would be equivalent to including two separate patents under one specification, viz., a patent for a process and a patent for improvements in pressure filters.

4. If the applicant wishes to secure patent rights in respect of the improvements referred to in claims 4 to 7 which shall be valid for all pressure filters whether used for the process referred to in his specification or not, it will be necessary for him to apply for a separate patent in which the improvements are detailed and in which claims 4 to 7 may be included.

5. Whether this is done or not, claims 4 to 7 amended as pointed out above should be included in the specification now returned herewith before the leave applied for for filing the specification can be granted.

I have the honour to be

Gentlemen,

Your most obedient servant,

Ramaswami

for Offg. Secretary to Government.

54

K.R.
2

per: mis file re. 27.06.1910.

GENERAL.

SC 18 D No. 3802/C (51)

To

THE ~~PATENT~~-SECRETARY, TO THE GOVERNMENT OF MYSORE,
~~PATENT OFFICE,~~ GENL & REV. DEPTS.,
~~CALCUTTA.~~ BANGALORE,
MYSORE.

FROM

REMFRY & SON,
SOLICITORS AND PATENT AGENTS,
CALCUTTA.

Dated CALCUTTA, the 16th January 1913.

Sir,

Dept. P. File Lr. M.
FILE INDICATION.
Mysore Pats.

re C. W. MERRILL. (MYSORE) Case B.

In compliance with your Letter No. G.659/G.M. 171-10-9 dated 3rd August 1912, we beg to resubmit herewith the new Claims amended as required and solicit the favour of early Orders upon the Application.

We have the honour to be,
Sir,
Your very obedient servants,

1 Enclo.

I.M.B.

1,000.—17-3-11.

1½

4|:|2

52

G.R.S. 26]

Fil No. 270-10

Serial No. 14

Diary No. of letter replied to 3802

No. G. 4598

General and Revenue Secretariat

( )

, the 19 .

ssue 10th Feb 1913

Signed by Mr B. Ramachandra

To

The State Geologist in Mysore.

Sir,

With reference to para 2 of your letter No. 233, dated the 23rd July 1912, I am directed to forward herewith the amended claims ~~in respect of~~ received from Messrs Remfry & Son, Calcutta, in respect of the invention for "An Improved process for precipitating and recovering valuable materials from solutions and particularly metals from hydro-metallurgical solutions"

over.

SUBJECT.

by Mr. Charles Washington Merrill,
and to request to be informed if
the claims as now amended,
maybe accepted, and leave to file
a specification of the invention granted.

2. A copy of the specification
is also herewith forwarded for refee
and return along with your opinion
called for above.

I have &c,

4.2.13

For the Secretary.

List of enclosures,

Copied by [illegible]

Examined by

GPB—10,000—28-2-11.

54

M.G.D. 13]

MYSORE GEOLOGICAL DEPARTMENT,

DATED BANGALORE, 20 Feb 1913.

DIARY No. 4559

No. 1987-Enc.1

1912-1913
SECTION Pen : Mis
FILE No. 270 of 1910-11
SERIAL No. 15

From

DR. W. F. SMEETH, M.A., D.SC., A.R.S.M., etc.,
State Geologist in Mysore.

To

K.R. Srinivasa Iyengar, Esquire, M.A.,
Offg: Secretary to the Government of His Highness
the Maharaja of Mysore, General and Revenue
Departments, Bangalore.

Sir,

In reply to your letter No.G. 4598/G.M. 270-10-14, dated 10th February 1913, forwarding the amended claims received from Messrs.Remfry & Sons, Calcutta, in respect of an invention for "Improved process for precipitating and recovering valuable materials from solutions and particularly metals from Hydro-metallurgical solutions" by Mr. Charles Washington Merrill, and requesting to be informed whether the claims as now amended may be accepted, and leave to file a specification of the invention granted. I have the honour to inform you that the claims as now amended may be accepted and the leave applied for granted.

GPB.—400—21-6-13

The

The papers received with your letter under reply are herewith returned.

I have the honour to be,

Sir,

Your most obedient servant,

W. Smeeth

K.T.G.

State Geologist in Mysore.

P.S.

The Specification referred to in para 2 of your letter does not appear to have been sent here

The Specification sent herewith

C. W. Merrill (Myron) Case B.

C L A I M S.

1.---- The process for precipitating and recovering material from solution which consists in subjecting a precipitant to mechanical treatment for the removal of any deterrent coating from the surface of the particles thereof, and precipitating said solution while in motion by said precipitant, conducting the mixture without rest to a filter, and separating the solid from the liquid in said filter, the precipitant above referred to being preferably added to the duct through which the solution is being conveyed at a point adjacent to the outlet of same from a receiver, and the two forced together into the filter and at the top thereof, the mixture of solution to be treated and the precipitant being excluded from contact with the atmosphere during the whole of the process, substantially as described.

2.---- In the process set forth in Claim 1 the employment of a suction pump at a point adjacent to which the precipitant is added to the solution to be treated while in motion and which pump then conducts the mixture to the top of the pressure filter.

3.---- In the process for precipitating and recovering metals from cyanide solutions in the manner set forth in Claim 1 the employment of zinc as the precipitant and the addition of same thereto in the form of an emulsion obtained by mixing the zinc with a liquid in a grinding apparatus.

4.---- In the containers of pressure filters used in the process set forth in Claim 1, the employment of a pipe of convenient size leading from a feed channel located above the bottom

of

of the container and terminating within the same at or near said bottom, said pipe being preferably non-metallic and made removable and its upper end caused to extend a sufficient distance into and above the bottom of the feed channel to prevent the segregation of the heavier precipitates in the container.

5.----- Connecting the pipe set forth in Claim 4 with the feed channel by means of a suitable screw device,

6.---- In the pressure filters referred to in Claim 4, the combination of a series of suitable filter plates with a series of containers each constructed as set forth in Claim 4, and of devices whereby the filtrate is discharged by means of a suitable open or closed delivery at or near the top of appropriate filter plates.

7.---- In the arrangement set forth in the preceding Claim the formation of a suitable opening from appropriate filter plates at or near the bottom thereof into a suitable open or closed delivery channel, and the employment of means for controlling same from the exterior of the press, for the purposes specified.

29/1/13 2 Dfs

No G. 5190/G.M. 270-10-16 5-8

GOVERNMENT OF MYSORE

General Department.

Register No. 6 **of 1910-11**

Bangalore, the 28 To Febr 1913.

WHEREAS an application, dated the 21st March 1911 and received on the ~~21st January 1913~~ 27th April 1911, has been submitted under Section 5 of the Mysore Inventions and Designs Regulation, 1894, by Charles Washington Morrill of Berkeley, Alameda County, California, United States of America, Metallurgical Engineer,

(hereinafter referred to as "the applicant") for leave to file a specification of an invention for An improved process for precipitating and recovering valuable materials from solutions and particularly metals from hydrometallurgical solutions.

And whereas the applicant has duly complied with all the requirements of

Section 5 of the said Regulation;

The Government of Mysore are pleased, under Section 6 of the said Regulation, to authorize the applicant to file a specification of the said invention in accordance with the provisions of the said Regulation.

ORDERED, that the applicant be, and he is hereby, informed accordingly.

By Order of the Government of Mysore,

25/2/03

for Secretary to the Govt. of Mysore,
Gen. and Rev. Depts.

Certified that the fees prescribed in the fourth schedule to the Mysore Inventions and Designs Regulation, 1894, in respect of the application for leave to file the said specification and of the filing thereof have been paid by the applicant, and that the specification hereinbefore described has been duly filed in accordance with the provisions of Section 8 of the said Regulation on this the Twenty eighth day of March 1903.

for Secretary to the Govt. of Mysore,
Gen. and Rev. Depts.

V

28/2/13 2 Dft

(60)

G.R.S. 26]

8m File No. 270-10

Serial No, 1

Diary No. of letter replied to 4559

No. G. 5191 (E.1)

General and Revenue Secretariat

( )

, *the* . 19 .

To

Messrs Remfry and Son,

Solicitors & Patent Agents,

Calcutta.

Date of issue 28-2-13

Signed by Mr B Ramaswamiè

Gentlemen,

With reference to correspondence ending with your letter of the 16th January 1913, I am directed to forward herewith G.O. No. G. 5170 Dom. 21-1-13 dated the 28th Feby 1913, authorising Mr Charles Washington Merrill of Berkeley, Alameda County, California, U.S.A., to file a specification of his

over.

SUBJECT.

8/4/13 2 7/2

invention for "An improved process for precipitating and recovering valuable materials from solutions and particularly metals from hydrometallurgical solutions" and to request that the fact may be communicated to the party concerned.

I have &c,

25.2.13

For the Secretary

List of enclosures,

Copied by

Examined by

GPB—10,000—28-2-11.

DIARY ... 4970 G

62

REMFRY & SON,
SOLICITORS & PATENT AGENTS.
[FIRM FOUNDED 1827. PATENT DEPT. ESTBD. 1859.]
TELEGRAPHIC ADDRESSES :—
GENERAL : "REMFRYS, CALCUTTA."
PATENT DEPT. : "PATENTABLE, CALCUTTA."
CODES : A. B. C. CODE (5TH EDN.) WESTERN UNION TEL. CODE. PATENT CODE.

1912–13
Patent Department.
SECTION – Gen: Mis
FILE No. 270 of 1910-11
SERIAL No. 18

REGD.

FOREIGN MEMBERS, CHARTERED INSTITUTE OF PATENT AGENTS.
TELEPHONE NO. 593.

PLEASE ADDRESS POST BOX NO. 161.
8, Hastings Street,
Calcutta, 10th March 1913.

DEPT.	P.	FILE LR.	M.
FILE INDICATION.			
Mysore Pats.			

V 14/3/13

Govt 15/3

To

The Secretary to the Govt of Mysore
General & Revenue Depts
B a n g a l o r e

DEAR SIR,

re C.W.MERRILL. (CASE B)

Mysore *No.*6/10-11. ~~*dated*~~

Your favour of 28th ultimo* in the above matter is duly to hand with Order dated 28/2/13 granting Leave to file Specifications.

If any action is required in this matter, you will understand from this acknowledgment that we are taking such action and will, if necessary, write to you further regarding same.

* No. G.5191(E.1)/g.m. 270-10-17. Yours faithfully,

REMFRY & SON,

per

Acknowledgment.
Ackt.

REMARKS.

We beg to return herewith the said Order and to request that the date of receipt of the Application be rectified, as such Application was submitted by us on 24/4/11 but the date of receipt is recited in the Order as 21/1/13.

1 Enclo.

A.M.

IN ALL LETTERS REGARDING THIS MATTER, WE SHALL BE MUCH OBLIGED BY YOUR USING THE ABOVE HEADING AND NOT INCLUDING OTHER MATTERS IN SUCH LETTERS.
[PLEASE ADDRESS CORRESPONDENCE TO :—REMFRY & SON (PATENT DEPT.) POST BOX NO. 161, CALCUTTA.]

Lr. (Ackt.)—500—5-9-12.

5166
9

GENERAL.

63

REGISTERED.

...012-13
SECTION Gen: Mis
FILE No. 270 of 1910-11
ITEM No. 19

To

THE ~~PATENT~~ SECRETARY, TO THE GOVERNMENT OF MYSORE,
~~PATENT OFFICE~~, GENL. & REV. DEPTS,
~~CALCUTTA.~~ BANGALORE,
MYSORE.

FROM

REMFRY & SON,
SOLICITORS AND PATENT AGENTS,
CALCUTTA.

Dated CALCUTTA, the 19th March 1913.

Sir,

Dept. P. File Ln. M.
FILE INDICATION.
Mysore Pats.

re C. W. MERRILL. MYSORE NO. 6 of 10-11.

CASE B.

Pursuant to the Order granting leave in this matter dated 28th February 1913, Register No. 6 of 1910-11, we have the honour to forward herewith 4 copies of the Specification of CHARLES WASHINGTON MERRILL, of Berkeley, Alameda County, California, United States of America, Metallurgical Engineer, in respect of his Invention for "AN IMPROVED PROCESS FOR PRECIPI-"TATING AND RECOVERING VALUABLE MATERIALS FROM SOLUTIONS AND "PARTICULARLY METALS FROM HYDROMETALLURGICAL SOLUTIONS".

The abovementioned Order was returned by us on 10/3/13 for rectification, and we solicit the favour of your returning such Order duly rectified and with Certificate at foot thereof duly signed.

A Post Office Order for Rs. 30/- is sent today.

We have tne nonour to name our Office in Calcutta as the Address for Service under the Act.

We have the honour to be,
Sir,
Your very obedient servants,

REMFRY & SON

Bk.Post.
4 Specns.

I.M.B.

1,000.—17-3-11.

64

COUPON. *The remitter may write here any communication to the payee.*

Rs. 130 As. : re C.W.Merrill (Mysore) Case B. As per letter of date.

REMFRY & SON *Remitter.*

Simla Telegram Office.

1913.11.19

27/3/13

B V

MYSORE GOVT. GEN. & REV. SECRETARIAT,

No. G. 7871 *Dated Bangalore,* 5th June 1913.

Gm. 270-10-20

NOTIFICATION.

(PATENT.)

The following specification of an invention has been filed in accordance with Sections 8, 9, 10 and 11 of Regulation XI of 1894 (The Inventions and Designs Regulations) and is open to inspection at the Mysore Government Secretariat on application to the Secretary to the Government of His Highness the Maharaja of Mysore, General and Revenue Departments, and on payment of a fee of one Rupee.

By Mr. Charles Washington Merrill of Berkeley, Alameda County, California, United States of America, Metallurgical Engineer

"An Improved process for precipitating and recovering valuable materials from solutions and particularly metals from hydro-metallurgical solutions."

By Order,

SP

for Secretary.

To

The Compiler *Mysore Gazette*, for publication.

GPB—500—23-7-06.

2 copies made
28/5/13

No. Q. 7872
G.M. 270-12-21

MYSORE GOVT. GEN. & REV. SECRETARIAT,
Dated Bangalore, 6th June 1913.

From

The Secretary to the Government of H. H. the Maharaja of Mysore,
General and Revenue Departments.

To

Messrs Remfry & Sons,
Solicitors and Patent Agents,
Calcutta.

Sir,

With reference to your letter dated the 22nd March 1913 the corrce ending with I am directed to forward copy of a Notification No. Q 7870/G.M. 270-10-20 dated 6-6-13 issued by this Government in regard to the invention filed by you under Regulation XI of 1894 (The Inventions and Designs Regulations.) and I request that the same may be communicated to the party concerned.

The order granting permission to file specification is herewith returned, with the certificate at foot, duly filled in and signed. the date of receipt of the original applr corrected as during exn of the order

I have the honor to be,
Sir,
Your most obedient servant,

SPR
for the Secretary.

27-5-13

G.R.S. 29A]

67

19

From

Secy. to the Govt. of His Highness
The Maharaja of Mysore,
Genl. and Rev. Dept.

To

The Deputy Commr,
Treasury Depts,
Bangalore

Dated

Despatched 6th June 1913

Received

General No. G. 7873

No. G.M. 270-10-22

Enclosure No. with Rs 83/-

Has the hona to forward herewith a sum of Rs 30-(thirty only) received from messrs Remfry & Son, Calcutta, being the fee payable under Schedule IV Cl 2 of the Mysore Inventions and Designs Regulation No. XI of 1894 for filing a specification of Mr. Charles Washington Merrill's invention for "An improved process of precipitating and recovering valuable materials from solutions and particularly metals from hydrometallurgical solutions" and requests the favor of an acknowledgment for the receipt of the amount

By order,

28/5/13

for Secretary

GPB—20,000—24-10-10.

copd 28/5/13.

5166.

4 Diffs

3 copies

27.5.13

(68)

G.R.S. 29A]

19

From

Secy. to the Govt. of His Highness
The Maharaja of Mysore,
Genl. and Rev. Dept.

To (1) The State Geologist in Mysore.
(2) The Supdt, Govt Museum.
(3) The Chief Engineer of Mysore

Dated

Despatched 6th June 1913

Received

General No. 97874-6

No. G.M 270-10-23

Enclosure No. 1 each

Has the honor to forward herewith for record in his office copy of a specification of an invention for "An improved process of precipitating and recovering valuable materials from solutions and particularly metals from hydrometallurgical solutions" by Mr. Charles Washington Merrill of Berkeley, Alameda County, California, U.S.A., and to request the favor of an acknowledgment.

By order,

28/5/13

for the Secretary.

3 copies made. 28/5/13.

GPB—20,000—24-10-10.

Rs 30/- Book No. 1044 No. 49

Bangalore – Treasury dated 9-6-12

Received from Secretary to the Govt. of Madras

Rupees Thirty – only

Annas – and Pies – being on account of

fee in respect of an invention under

his dockets S.7873 & 6603

S.R 270-10-22

H V Ramaswami

In charge of Treasury.

Bangalore

Noted – To Bk L

MM

14/6

DIARY No. 6936

1912-1913
SECTION Jen - Mis
FILE No. 270 of 1910-11
SERIAL No. 25

No. 307

OFFICE OF ECONOMIC BOTA
SUPERINTENDENT, MYSORE GOVERNM

Bangalore, dated 9th June

FROM

G. H. KRUMBIEGEL, ESQ., F.R.H.S.,
Economic Botanist,
Superintendent, Mysore Govt. Museum,
Bangalore.

To

The Secretary to the Govt. of
the maharaja of Mz
Gen. and Rev.

Sir,

I have the honor to acknr
receipt of a copy of Spe
of an invention for "An u
process of precipitating a
ing valuable materials f
and particularly meta
hydrometallurgical pro
Mr. Charles Washington Mc
U. S. A, forwarded with
No. G. 7874-6/G.M. 270-10-23.
instant.

I have the
Sir
your most obe

Superin
Govt.

V
1016

191

From

G. H. KRUMBIEGEL, Esq., F.R.H.S.,
Economic Botanist,
Supt., Mysore Govt. Museum,
Bangalore.

To

The Secretary to the Govt. of H.H. the maharaja of Mysore. Gen. and Rev. Dept.

Dated 9th June 1913.

Despatched —— .. ——

Received

General No. 307
No.

Enclosure No.

Acknowledging receipt of a copy of specification of an invention for "~~Improvements~~ "An Improved process of precipitating and recovering valuable materials from solutions and particularly metals from hydrometallurgical solutions" by Mr. C. W. Merrill of Berkeley, U.S.A.

GPB—5,76,000—6-4-12

DIARY No. 6957

1912-1913
SECTION Jan: mis
FILE No. 270 of 1910-11
SERIAL No. 26

(71)

M.G.D. 13]

MYSORE GEOLOGICAL DEPARTMENT,

~~DATED~~ BANGALORE, 9th June 1913. 19

No. 2902

FROM

DR. W. F. SMEETH, M.A., D.Sc., A.R.S.M., etc.,
State Geologist in Mysore.

To

K.R. Srinivasa Iyengar, Esquire, M.A.,
Secretary to the Government of His Highness
the Maharaja of Mysore, General and Revenue Departments,
BANGALORE.

SIR,

I have the honour to acknowledge, with thanks, the receipt of a copy of a specification of an invention for "An improved process of precipitating and recovering valuable materials from solutions and particularly metals from hydrometallurgical solutions" by Mr. Charles Washington Merril of Berkeley, Alameda County, California, United States of America, forwarded with your docket No. G. 7874-6/G.M. 270-10-23, dated the 6th June 1913.

I have the honour to be,
Sir,
Your most obedient servant,

Registrar
for State Geologist in Mysore.

GPB-300-28-6-13.

(72)

Mysore Public Works Department,

No. 5565 Central Office,

Dated Bangalore, 11th July 1913.

From

The Chief Engineer of Mysore,

Bangalore.

DIARY No. 329

19/3/1914

SECTION [illegible]

LE No. 270-10

[illegible] No. 27

To

K.R.Srinivasaiengar, Esq., M.A.,

Secretary to Government,

General and Revenue Departments,

Bangalore.

Sir,

I have the honour to acknowledge with thanks, the receipt of a copy of a specification of an invention for "an improved process of precipitating and recovering valuable materials from solutions and particularly metals from hydro-metallargical solutions", by Mr.Charles Washington Merril of Berkeley, Alameda County, California, received with your Memo No.G.7874-6/G.M.270-12-23 dated the 6th June 1913.

-10.

I have the honour to be.

Sir,

Your most obedient servant,

Deputy Chief Engineer,

Mysore P.W.D.

V.N.S.

A.M.E.

Wheeler P.M.O.

Department Chief Purchaser,

Fleet Naval Hospital Equipment,

Dear Sir,

I have the honour to request that you will